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# REPORT

Mauritius. Cent. Inst. Dep't

ON

## ACUTE ANÆMIC DROPSY

By

Andrew Davidson. F.R.C.P.S.  
F.R.C.



MAURITIUS.

GENERAL STEAM PRINTING COMPANY, GOVERNMENT STREET.

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No. 191.

Mauritius,  
Medical Department,  
28th April 1880

To,

The Honorable,  
The Acting Colonial Secretary,  
&c. &c.

Sir,

I have the honor to forward you for transmission to His Excellency the Governor a Report upon the Epidemic of "Acute Anæmic Dropsy" which prevailed in this Colony during part of the years 1878 & 1879.

The very able reports drawn up and forwarded to me by Drs. Clarenc; Vinson; Dardenne and Pellereau form the basis of this Report which has been compiled with great care by Dr. Andrew Davidson.

With His Excellency's sanction, I propose sending copies of this report to the principal British & Foreign Medical Societies and to those Colonies where Immigration of Indians takes place.

I have the honor to be,

Sir,

Your most obedient servant

FRANCIS LOVELL,

Chief Medical Officer.

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REPORT ON ACUTE ANÆMIC DROPSY.

In November 1878, Dr. Clarenc of Moka observed several cases of a peculiar form of Anasarca preceded by purging and vomiting, and in the following month he described its symptoms in a very able report addressed to the then Acting Chief Medical Officer.

The first Official notice of the disease appears in Dr. Clarenc's Weekly Return of Diseases as Poor Law Medical Officer, for the week ending 14th December 1878, and the name there given by him to the new disease is "Hydropisie Scorbutique Aiguë." Dr. Clarenc adds that the symptoms are similar to those of "béri-béri"; and this name, accepted by several members of the Profession was popularly adopted, and the disease was henceforth generally known and spoken of as the "béri-béri".

Although the first case that attracted notice occurred in November, there is reason to believe that the disease had existed for at least two months before in some parts of Moka. Dr. Clarenc states that an Indian Priest named Mamode Neeiraj suffered from it towards the end of September. This man, who was very intelligent, affirmed that he contracted the disease at Pailles, where according to him it already existed, while on a visit to some of his co-religionists.

It will be readily understood that such a disease might have existed for some time without being recognised as distinct from the dropsy, anasarca and œdema so frequently met with as a result of malarial cachexia. We have therefore drawn up in a tabular form a statement of the number of cases of these diseases occurring in the Government and Poor Law Hospitals from June to December 1877 and 1878 respectively (see Tables A & B). From these tables it appears that the disease must only have become general in Moka towards the end of 1878.

TABLE A.

Statement showing the number of cases of "Anasarca" "Dropsy" and "Edema" which took place in the Government and Poor Law Hospitals and Dispensaries from 1st June to 31st December 1877.

1877								
Districts	June	July	August	September	October	November	December	TOTAL
Port Louis... ..	3	7	3	6	6	3	3	31
Pamplemousses...	13	2	3	3	9	7	3	42
Riv. du Rempart	2	..	2	..	1	..	..	5
Flacq ... ..	..	6	3	..	7	1	1	18
Grand Port	..	..	..	..	..	..	..	..
Savanne ... ..	..	..	..	..	..	..	..	..
Black River	..	..	1	..	..	..	..	1
Plaines Wilhems	..	..	..	..	..	..	..	..
Moka .. ..	2	..	1	..	..	..	..	3
Total Mortality...	22	15	13	9	23	11	7	100

Of the 100 cases which took place from June to December 1877, 7 were due to œdema; 23 to dropsy and 70 to anasarca. Of the seven cases of œdema, 3 occurred in Port Louis and the 4 others in the district of Pamplemousses. Of the 23 cases of dropsy, 5 took place in the district of Rivière du Rempart, and 18 in that of Flacq.



TABLE B.

Statement showing the number of cases of Anasarca, Edema and Dropsy which took place in the Government and Poor Law Hospitals from June to December 1878.

1878.							
Districts	June	July	August	September	October	November	December
Port Louis .. ..	3	6	11	2	2	5	2
Pamplemousses .. ..	8	12	7	6	1	1	6
Rivière du Rempart .. ..	..	..	..	..	..	..	..
Flacq .. ..	..	1	..	2	1	5	1
Grand Port .. ..	..	..	..	..	..	..	..
Savanne .. ..	..	..	..	..	..	..	..
Black River .. ..	1	..	1	..	..	..	..
Plaines Wilhems .. ..	..	1	..	1	..	..	1
Moka .. ..	1	4	1	1	..	3	4
Total .....	13	24	20	12	4	15	55
							143

The first mention of cases of "Béri-Béri" is made by Dr. Clarenc on his Weekly Return of diseases for the week ending 14.12.78. The name given by him to the disease is "*Hydropisie Scorbutique Aiguë*", he adds that the symptoms are similar to those of the "Béri-Béri."

The first cases appeared near the Police Station, Quartier Militaire and near the Sugar Estates "Bonne Veine," "Alma" and "Valetta."

Of these 143 cases, 134 were caused by anasarca, 8 by edema of feet or legs, and 1 by dropsy.

# RETURN C.

*Return showing the number of cases of Beriberi which took place in the several Government and Poor Law Hospitals in Town as well as in the Country Districts from 1st November 1878 to 28th February 1880.*

Districts	1878		1879												1880			Grand Total.		
	November	December	Total for 1878	January	February	March	April	May	June	July	August	September	October	November	December	Total for 1879	January		February	Total for 1880
Port Louis .....				12	36	43	13	18	16	15	6	4	2	9	4	178	4	4	8	186
Pamplemousses ..				8	18	5	7	27	6	18	6	4	2	5	1	107	0	9	9	116
Riv. du Rempart					4	4	3	3	2	0	1	1	0	2	0	24	0	0	0	24
Flacq .....				1	12	11	7	4	2	1	2	2	1	1	0	44	1	3	4	48
Grand Port.....				0	21	14	11	6	2	3	4	0	0	0	0	61	0	0	0	61
Savanne .....				9	27	12	15	6	1	2	3	0	2	0	0	77	2	0	2	79
Black River .....				5	3	3	0	1	0	1	0	0	0	0	0	13	1	0	1	14
Plaines Wilhems				41	56	23	5	3	0	1	0	1	0	1	0	131	0	0	0	131
Moka .....				83	26	9	3	2	1	0	0	3	0	0	0	127	1	0	1	128
Total ....				163	203	124	64	70	30	41	22	15	7	18	5	762	9	16	25	787

This disease, which we will speak of as acute anæmic dropsy, soon became so prevalent that it might justly be regarded as epidemic. In December, it had already extended to Plaines Wilhems and Port Louis; in January, 1879, to Savanne, Pamplemousses, Flacq, Rivière du Rempart and Black River; and in February it appeared in the District of Grand Port.

While it was almost entirely confined to the Indian population, it affected that class whether residing in town or country, and all ages and both sexes suffered. It was observed however that the Calcutta Indians suffered more than the natives of Madras. Scarcely a "camp" escaped; and once it appeared in a camp almost every house furnished its quota of patients. The disease attained its acme in February 1879, and had become much less frequent and less fatal by June; and soon after this

it may be said practically to have died out. Only one case of death has been ascribed to the so called "béri-béri" during the first two months of 1880; and it is by no means certain that the public, having got hold of a name that takes their fancy, do not ascribe deaths to béri-béri that are really due to malarial cachexia.

The Return C shows the number of cases of Acute Anæmic Dropsy that were treated in the Government and Poor Law Hospitals during the whole period of the Epidemic. Although it, in no sense indicates the prevalence of the disease, it probably marks pretty fairly the progress of the malady.

Although, in proportion to the number of persons affected, the disease was certainly not a fatal one, yet it caused a very considerable aggregate mortality, as will be seen by referring to Table D.

TABLE D.

Statement showing the mortality which took place, from 1st November 1878 to 28th February 1880, from "Beriberi" "Acute Dropsy" "Acute Anæmic Dropsy" "Anasarca" &c., (all those diseases are included in the monthly mortality returns under the heading "Beriberi" vel "Acute Dropsy.")

Districts	1878			1879												1880			GRAND TOTAL.
	November	December	Total for 1878	January	February	March	April	May	June	July	August	September	October	November	December	Total for 1879	January	February	Total for 1880
Port Louis	...	...	...	4	37	33	15	3	4	..	..	..	..	..	..	96	..	1	97
Pamplemousses	..	..	..	3	49	30	4	8	6	3	1	..	..	..	..	104	..	..	104
Riv. du Rempart	..	..	..	1	8	11	3	4	..	..	..	..	..	..	..	27	..	..	27
Flacq	..	..	..	10	26	34	16	16	7	6	3	..	..	..	..	118	..	..	118
Grand Port	..	..	..	2	13	28	23	12	3	2	7	10	3	1	..	104	..	..	104
Savanne	..	..	..	12	27	49	25	11	4	3	3	..	1	..	..	135	..	..	135
Black River	..	..	..	..	2	1	3	..	..	..	..	..	..	..	6	6	..	..	6
Plaines Wilhems	..	..	..	..	18	19	15	3	3	1	2	1	..	..	3	69	..	..	69
Moka	..	2	2	6	23	18	6	7	6	..	1	..	..	..	..	67	..	..	69
Total	..	2	2	42	203	223	110	64	33	15	17	11	4	1	3	726	1	1	729



The symptoms of this peculiar epidemic, the origin, spread and gradual disappearance of which we have thus briefly noted, must now be more fully examined. In doing so, we shall avail ourselves of the excellent Reports drawn up by Drs. Clarenc, Vinson, and Dardenne, and the carefully observed and fully recorded cases of the disease treated by Dr. Pellereau at the Civil Hospital, and shall preface our analysis of the leading symptoms by a short definition of the disease.

The symptoms of Acute Anæmic Dropsy were—Anasarca of the lower extremities, often extending to the upper extremities and trunk—seldom to the face, and only in the worst cases complicated with ascites, hydropericardium and hydrothorax. The dropsy was preceded by diarrhœa or vomiting or both; with deep seated pains in the limbs, epigastrium or abdomen, and was accompanied with slight fever, and in most cases by a rubeolar skin eruption disappearing under pressure, sometimes ending in petechiæ or phlyctænæ and desquamation. The disease, sudden in its commencement, followed a chronic course, often lasting from three to six weeks—the tendency to œdema of the feet persisting after the patient felt otherwise well. The patients, generally Indians, were very anæmic, the blood watery, with marked diminution of the red blood cells and increase of leucocytes and granules.

*Dropsy*:—The anasarca was one of the most striking features of the disease. The patient may have had an attack of vomiting and purging without thinking much of it, probably ascribing these symptoms to some indiscretion in diet, when swelling of the feet and legs attracted his attention and led him to seek advice. But not only was the dropsy the symptom that usually first excited the suspicion of the patient, it was the one that impressed itself most upon the physician,—it was one of the earliest, one of the most marked, and a constant symptom of the disease. Hence the physician who first recognised the disease described it as “*hydropisie scorbutique aiguë*” before he had time to formulate a theory of the disease; and it was generally spoken of as “*epidemic dropsy*,” “*acute anæmic dropsy*” or “*acute dropsy*” by those who had not adopted any special pathological view of its nature.

The dropsy was usually preceded by diarrhœa and vomiting, pains in the limbs and epigastrium, and often by rigors and fever, but cases occurred in which the dropsy was the first symptom.

It usually began about the feet or malleoli, and in a considerable number (perhaps a majority) of the cases it was confined to the feet and legs (\*). In a few instances it was

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(\*) “La maladie éclate parfois sans prodromes par une apparition brusque de l'œdème aux malléoles et aux articulations métatarso-phalangiennes, et dans l'espace de 24 à 48 heures l'infiltration se généralise aux membres inférieurs, envahit le bassin et s'arrête aux lombes en s'y développant avec une prédilection marquée.

Chez d'autres, l'infiltration remonte à l'abdomen après avoir envahi le scrotum et le pénis chez l'homme, et les grandes lèvres chez la femme. Dans deux cas (Ragoomundun et Poolmassy) le scrotum avait pris un développement énorme, et la peau de la verge tournée à son extrémité en spirale était tellement tendue que la miction était devenue douloureuse et pénible; ce n'est que par la pression du bout de la verge que l'urine s'écoulait goutte à goutte; chez ces deux malades la partie antérieure de la poitrine participait à l'infiltration. Le doigt

observed to begin in the hands. When the disease was more severe, the anasarca spread to the thighs, trunk and upper extremities. When the anasarca was general, the skin in the epigastric region became so infiltrated as to render palpation and percussion difficult. Ascites, hydropericardium and hydrothorax sometimes supervened in those instances in which the anasarca was general.

It was noticed that the swelling disappeared or greatly diminished during the night and increased by day (§). This was the result of position and repose and not to be ascribed to periodicity as some supposed.

The dropsy was not only the most obtrusive, it was also the most persistent symptom of the malady. It not unfrequently remained after the patient felt quite well in other respects, and even after the labourer was able to resume his work in the fields. When the œdema as a permanent symptom had disappeared, slight swelling of the feet frequently occurred after a day's hard work or a long walk.

*Diarrhœa and Vomiting* :—The disease was in most instances ushered in by diarrhœa and vomiting. Dr. Clarenc remarks that the premonitory diarrhœa is usually very severe, resembling cholera in the frequency of the calls to stool. The motions are generally yellow, green or white, seldom bloody. As a rule, the patient went to stool from 10 to 20 times in 24 hours. The diarrhœa, however, was seldom obstinate, usually yielded readily to treatment, and generally subsided spontaneously in a few days (†).

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appliqué par pression à cette région, comme à toutes les autres envahies, laissait une empreinte caractéristique. Presque dans tous les cas où l'anasarque dépassait la racine des membres pelviens, j'ai constaté la présence de la sérosité dans le péritoine, les plèvres et même le péricarde. Chez quelques autres malades, l'anasarque se généralise de plus en plus et dirige sa marche du côté des membres supérieurs; du dos de la main elle envahit les avant-bras, rarement les bras et la face. Cette dernière région n'a jamais été bien infiltrée. Le développement de l'anasarque est toujours symétrique; la marche toujours ascendante."—*Dr. Dardenne*.

(§) "Une particularité à signaler au sujet de l'enflure et sa disparition momentanée à certaines heures de la journée: ainsi beaucoup de malades n'offrent pas la moindre trace d'enflure le matin et celle-ci reparait à une heure plus ou moins avancée du jour. Quelques uns déclarent que l'exercice la fait disparaître tandis que chez d'autres j'ai constaté au contraire le retour de l'œdème (disparu depuis quelques jours) à la suite d'une marche ou d'un travail de peu de durée. J'ai vu des malades m'affirmer que l'enflure ne faisait son apparition qu'un jour sur deux, mais je n'ai pas eu l'occasion de vérifier l'exactitude de cette assertion".—*Dr. Clarenc*.

(†) Le symptôme le plus constant du déclin de cette maladie chez les sujets soumis à mon observation a été la diarrhée. Les matières évacuées étaient tantôt jaunâtres, parfois noirâtres et assez souvent sanguinolentes. Je suis persuadé que plus d'un malade a succombé à cette période prodromique de la maladie, et je n'ai aucun doute qu'un indien nommé "Mungur" dont la femme était atteinte d'hydropisie épidémique et qui a été enlevée par des accidents dysentériques, était à cette période de l'affection.

"Les vomissements ne sont pas très fréquents comme symptôme du début, mais ils sont assez persistants quelquefois et je les ai cons-



Vomiting occurred perhaps in three fourths of the cases. It was accompanied with slight nausea, and considerable epigastric distress, often amounting to pain, which persisted after the vomiting ceased.

These symptoms were occasionally noticed to occur after the dropsy was established, but this was quite exceptional.

*The Skin Eruption:*—In a large proportion of the cases, an eruption was observed after attention had been drawn to it as a symptom of the disease, although exanthematous eruptions unless very pronounced are not readily detected on the swarthy skin of the Indian. On the face it was generally observed as a diffused redness: On the trunk, thighs and arms it presented a morbillous appearance—dark red, somewhat crescentic patches about 2 to 4 lines in diameter enclosing patches of healthy skin. On the legs, below the knee it was generally, although not always diffused—presenting the characters of erythema (‡). The redness disappeared on pressure. In bad cases petechiæ were seen along with the eruption. Phlyctenæ, bullæ and desquamation were the usual sequelæ of the eruption. If ulcerations occurred they were doubtless accidental.

Unfortunately, although the anatomical characters of the eruption were carefully observed, it has not been accurately determined at what precise period of the disease it occurred, nor how long it lasted. We think, however, that it generally appeared about a week after the cedœma and continued for about ten or

tâtés chez des malades qui n'avaient plus d'enflure depuis plusieurs jours. Chez un de ces derniers sujets il y avait du sang dans les matières vomées.”—*Dr. Clarenc.*

“ Chez le plus grand nombre l'affection est précédée d'une période prodromique caractérisée par des vomissements et la diarrhée, ou seulement par la diarrhée dont la durée varie de 24 heures à quelques jours.”

*Dr. Dardenne.*

(‡) “ Règle générale, la peau offre dès le début une coloration rouge, bien visible tôt ou tard quelque soit sa richesse en pigment. Cette rougeur n'est pas un pur effet de la tension cutanée; car elle s'observe au delà des parties infiltrées. Cette teinte érysipélateuse est quelquefois accompagnée d'épaississement de l'épiderme, particulièrement à l'épigastre, épaississement qui devient alors rugueux. Chez Mr. Loïs d'Unienville cet érythème persistait alors que tous ces phénomènes morbides, moins un reste d'anémie, avaient complètement disparu. Cet érythème se traduit, surtout lorsque l'hydropisie marche vers une issue fatale, et avec des phlyctènes sur les membres et sur le tronc.”

*Dr. Vinson.*

“ Un des symptômes les plus bizarres du début de l'hydropisie épidémique est l'apparition sur la figure des malades d'une coloration plus foncée de la peau formant une marque bien facile à constater chez les hommes au teint clair et qui m'avait échappé tant que je n'avais affaire qu'à des hommes que je n'avais pas vus antérieurement. Cette coloration se montre principalement sur les pommettes, sur le dos du nez et de chaque côté de la ligne médiane du front; elle peut envahir à la longue toute la figure quand la maladie dure longtemps”.... Sur le tronc, cet érythème se présente sous forme de taches séparées par des parties de peau saine comme cela se voit dans la roséole.

*Dr. Clarenc.*

twelve days. This is a point requiring further investigation should the opportunity again occur.

*Pain* was always complained of in some part of the body. Most generally it was referred to the lower extremities. The pain was variously described as, burning, shooting, or simply as a heavy sensation, deeply seated in the bones. Some patients complained of pains over the whole body—in the neck, lumbar region, and upper and lower extremities, while in others it was located in the joints of the feet. These pains, whether muscular or osseous, were frequently severe if we are to judge by the complaints of the patients. This symptom usually began simultaneously with the anasarca and disappeared after a week or ten days.

Epigastric pain of a more or less paroxysmal character was an almost constant symptom and was associated with tenderness on pressure. Pain in the hypochondria and the abdomen was less frequently observed.

*Dyspnœa*:—A certain degree of breathlessness was not uncommon, but severe dyspnœa, paroxysmal in character, was only observed when there was exudation into the pericardium or pleuræ, or when the lung was œdematous, and was doubtless dependent upon these conditions.

*Fever*:—We have no thermometrical observations of the temperature at the commencement of the disease. Many patients said that they experienced rigors followed by heat of the skin, but this mode of commencement was certainly not constant, and it is very doubtful if it was not rather the exception than the rule, and very probably occurred in those suffering from chronic malarial poisoning, in whom the outbreak of any disease may be sufficient to determine aguish symptoms.

After the disease was established and the patients came under observation the temperature was generally found to be about 37.2 to 37.4 in the morning rising to 37.6 or 37.8 in the evening; but occasionally it rose to 37.6 in the morning and 38.2 or even a little higher in the evening. These temperatures seem to indicate a mild febrile state. We are inclined to admit that Acute Anæmic Dropsy is to be looked upon as a febrile disease (\*).

(\*) La température du malade prise au thermomètre et dans l'aisselle n'a guère dépassé 38° au début de la maladie; elle oscillait entre 39.2 et 40° tous les jours vers 1 heure de l'après midi chez une de mes malades venant des Pailles où elle avait eu des accès de fièvre paludéenne et parvenue à une période avancée de l'affection; je dois avouer toutefois que mes observations n'ont pas été assez suivies sur les sujets soumis à mon observation pour que je puisse me permettre de traiter ce point de séméiologie.

Ce que je puis affirmer, c'est que chez les malades que j'ai pu observer à la période prodromique, je n'ai pas constaté de chaleur à la peau. Plus tard, c'est-à-dire, quand l'œdème avait pris de l'extension j'ai rencontré assez fréquemment une température au-dessus de la normale dans les parties affectées, mais les exceptions à cette règle n'étaient pas rares.—*Dr. Clarend.*

Chez quelques-uns, l'affection est complètement apyrétique comme dans le Béri-Béri décrit par nos auteurs français, chez d'autres elle est accompagnée d'un mouvement fébrile; la peau est alors chaude et tendue, cette sensation de chaleur est accusée par les malades; la rou-



Sudden rises of temperature to 39. or 40 occurred in some instances, but these rises were temporary, were subdued by quinine, and so far as we are aware were only observed in patients who had suffered from fever.

In a fatal case observed by Dr. Pellereau and which we will record in full, a rise of temperature coincided with a rapid increase of the dropsy, a sudden development of dyspnœa and signs of cardiac complication. The fever in this case was of an irregular intermittent or remittent type. Such instances must not be regarded as representing the normal temperature range of the malady, but rather as significant of an intercurrent complication in a patient saturated with the malarial poison.\*

*Condition of the Blood*:—Anæmia was an essential feature of the disease. The visible mucous membranes were uniformly pale, and the skin often of a pallid, earthy hue. When a drop of blood was taken and placed upon a glass for examination it was evidently watery and pale, and the colouring matter separated from the serum and appeared as a speck of brick dust dropped into a serous fluid. Under the microscope the red blood cells were found to be very much diminished (*oligocythemia rubra*); they did not form rouleaux, but became massed together irregularly in little heaps. There was always an increase of leucocytes with irregular masses of germinal masses and a vast number of minute, highly refracting granules.

The albumen was diminished, (*hypalbuminosis*) and it may be inferred from that fact that the inorganic salts were increased according to Schmidt's law.

The *Lymphatic* glands were not enlarged, painful or otherwise visibly affected. Many of the patients having been long in the Colony had enlarged spleens, as a matter of course; but it is remarkable that little complaint was made of pain in the region of the spleen.

The urine was seldom albuminous; sometimes a very slight cloud might be observed on heating, but albumen in noticeable proportions was never met with. The urine varied so much in respect to colour and quantity that no general rule can be established.

#### POST MORTEM APPEARANCES.

As the disease was by no means a fatal one when properly treated, comparatively few patients died in the public hospitals, on which account only a few autopsies have been made. It cannot be said therefore that this part of the subject has been thoroughly investigated. The following conditions have been noted.

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geur de la peau s'observe chez ceux qui sont le moins colorés. Chez tous ceux qui ont présenté une élévation de température T. A. 38°, 5 C; 39°; 39° 1; 39° 5; on observait des battements dans les carotides, ces battements très forts dans quelques cas présentaient un caractère onduleux ou rebondissant (dicrotisme). La fièvre est quelquefois entretenue par une maladie intercurrente, telle qu'une hépatite et ne cède que lorsqu'une médication appropriée est dirigée contre cette dernière. L'hydropisie n'est aucunement modifiée dans ce cas et continue sa marche envahissante vers les organes de l'abdomen et de la poitrine.—*Dr. Dardenne.*

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\* It must be observed, that the temperature charts of Dr. Pellereau give the range of temperature of patients under the influence of large doses of quinine.

The skin eruption disappears after death ; but where petechiæ or bullæ have been observed during life they will of course be visible. The phlyctenæ have been found to contain a reddish coloured serum. The connective tissue is generally found to contain serum ; but in some instances the anasarca seems to disappear before death.

On incising the skin, irregularly diffused sub-cutaneous extravasations of blood have been observed. The muscles are pale.

The pericardium<sup>\*</sup> usually contains from two to ten ounces of fluid. The heart is pale and flabby, its cavities in some instances empty, in others containing a moderate quantity of dark semi-fluid blood.

The pleura contains more or less serum, and the lungs are in most instances œdematous.

The liver is frequently found to be somewhat enlarged and softened, and in one instance it was ascertained to be fatty.

The spleen has been found normal, enlarged, and atrophied ; in respect to consistence it has been found healthy, but it has also, as will be seen from the cases which we publish, been observed to be softened. In one case it is reported to have presented the colour and consistence of Anchovy paste.

Most diversity is to be found in respect to the condition of the brain and its membranes. We believe however that as a rule they are healthy, although in some cases the cerebral substance is found to be œdematous and the ventricles to contain a considerable quantity of sero-sanguinolent fluid.

In the only instance in which the spinal canal was examined the membranes are said to have been congested, and the lumbar enlargement softened, but not hyperæmic. In one instance the medullary substance of the tibia was examined and found softened and red, and by comparison with the medulla in subjects dying from other diseases it was satisfactorily proved to be diseased.

The digestive track is not materially involved.

The following cases will illustrate better than any description the general features, course, and terminations of the disease.

#### CASES OF ACUTE ANÆMIC DROPSY.

*Cases reported by Dr. Pellereau—Police and Prison Surgeon.*

Case No. 1. Moosenally, aged 40 years, admitted 24 January 1879.

*Previous history* :—Has been sick for three months, and has suffered a great deal from malaria. He first had vomiting, diarrhœa and fever ; the vomiting lasted one day as also did the diarrhœa and the fever. The fever began with slight rigors. Then the patient felt pains in the epigastrium and groins. This pain extended down to the thighs and legs. Then the swelling commenced. It began in the legs and feet, but in the legs first and increased upwards. His hands were swollen first and finally his face. The swelling of his hands was not preceded by pain.

*State on admission*:—No rash to be seen; œdema of legs, of face, and of hands well marked; systolic murmur heard at the base of heart; mucous membranes pale;—no swelling of scrotum. During the day the swelling is greater than at night. Nothing to be noted about the liver and spleen. No albumen in urine.

Treatment: quinine grs. 10, tincture of digitalis m. 10, after each meal.

On the 28th, the quinine and digitalis were repeated, and half an ounce of *mistura ferri eo.* was ordered twice daily.

*February 2nd*:—Face and hands not swollen now, but the lower extremities are still very œdematous from groins to feet. Skin hot in the lower extremities especially about legs and thighs. There is a well marked rash which is of a scarlet colour, disappearing on pressure; œdema well marked. The lymphatic glands of groins are swollen and painful, more so on left than on right side.

*February 8th*:—At noon, the patient suddenly became swollen from head to feet. But before the swelling appeared he noticed that his body itched a great deal, then he felt cold—no vomiting or diarrhœa. The skin is hot and red, there is well marked œdema and pitting on pressure; no pains in the glands, no signs of lymphitis.

Treatment on the 9th of February, 1879: 15 grains of quinine and 10 drops of tincture of digitalis every day in the afternoon.

Every other day, in the morning, 20 grains of *pulv. scammonii.*

*February 11th*:—Patient in the same state.

*Do.* 17th — *Do.*

*Do.* 27th —Diminution of red globules which are grouped in heaps instead of forming rouleaux. Relative increase of leucocytes and a great many granules.

*March 6th*:—Patient states that his feet get more swollen at 5 p. m. every day.

Treatment: Tinet digitalis m. x, quinine sulpl. grs. xx in the morning.

*Do.* 7th:—Yesterday the feet got swollen at 1.30 p. m. Continue treatment.

*Do.* 12th:—Discharged cured.

Case No. 2. Codabuccus, aged 35, admitted 28th of January 1879.

*Previous history*:—Has been 24 years in Mauritius and has served 11 years in the Police. Has been for the last two years at Victoria Station, Grand River. He contracted the present disease at Grand River, and states that there are a great many cases in that locality. He had the disease a week before coming to hospital.

He first felt meteorism and sudden diarrhœa which was of a watery character—no blood in the stools. The diarrhœa continued for five days—no vomiting, nor rigors, and he had no fever then. At the same time as the diarrhœa appeared he had pain in the groins extending



downwards. On the sixth day he observed that his feet were swollen, also the leg (left). His face, hands, and trunk were never swollen.

*State on admission* :—No vomiting or diarrhœa. No disease about lungs and heart—no systolic murmur detected at the base of heart. Nothing to be seen about the liver; spleen extends about 6 fingers breadth below ribs; no enlarged glands; no pains in groins.

Legs swollen—skin hot and red, and there is a red rash disappearing on pressure.

No albumen, sugar, or blood in urine.

Treatment: quinine and digitalis as in case No. 1.

*February 9th* :—There is a slight, but well marked, desquamation of skin of legs.

Patient states that about 3 o'clock in the afternoon the legs begin to swell and that they reach their maximum at night.

*February 15th* :—Same state.

Treatment: Olei morrhuæ 1 oz. twice daily.

Immediately after each meal 1 oz. of mist: ferri co.

*February 18th* :—Same state.

*February 29th* :—Blood examined microscopically :

Red globules diminished in quantity; not forming rouleaux and network but grouped and heaped up together. Increase of leucocytes. The leucocytes are more or less deformed and some of them are even broken up, with their contents protruding. There is in the blood a great many shining granulations of various sizes, more or less circular or oval, solitary or formed in clusters.

*March 6th* :—Patient states that in the afternoon at about 5 p. m. his legs, which are well in the morning, get swollen. The swelling is then more marked on the calf of the leg.

Quinine 20 grains, and 10 drops of tincture of digitalis.

*March 7th* :—Yesterday the swelling came on at 1.30 p. m. and lasted till 6 o'clock; this morning legs well.

*March 12th* :—Discharged cured.

Case No. 3. Goolamally, aged 50, admitted 7th of February 1879.

*Previous history* :—Has been a very long time in Mauritius, and has been employed for a short time as Prison Guard at the Vagrant Depot, Grand River, where he contracted the disease. Has suffered much from fever, and has had the present disease for the last six days.

It began first with diarrhœa (serous stools) which lasted about three days—not attended with vomiting, but accompanied with fever and rigors.

After this, his feet began to swell, the swelling increased but never extended beyond the knees. He never had any pains. His face and hands were never swollen.

*State on admission* :—Edema of feet and legs below knees—no rash; no pain, nor tenderness; no enlarged glands, no swelling of face, hands or scrotum; no heat of skin, no enlargement of spleen.



No disease about liver and lungs.

The second sound at base of heart is prolonged and very harsh although there is no murmur.

Urine contains no albumen, sugar, or blood.

Quinine; and Scammony every other day.

*February 15th* :—Patient is well, oedema completely disappeared; discharged.

Case No. 4. Nadeer, aged 45, admitted 22nd February 1879.

*Previous history* :—A native of Calcutta, has been 22 years in Mauritius, and  $9\frac{1}{2}$  months in the Police Force. He has not suffered much from fever; has been at Victoria Station Grand River, for the last 4 months. Patient states that he has been suffering from the disease for a month and a half before admission into hospital. The present disease began with rigors and fever which lasted one day. A week after the fever, diarrhoea came on and lasted about a fortnight, and was more severe in the first than in the second week. Afterwards his feet got swollen about the dorsa and malleoli, and the swelling increased and invaded the whole body. He never had pains in his limbs but had slight pain in the tibio-tarsal articulations. He has never had vomiting.

*On Admission* :—General anasarca; tongue covered with a white fur; no rash, or pains; diarrhoea, 4 stools in a day (semi-fluid).

Nothing abnormal to be observed about lungs; systolic murmur at base of heart. Nothing apparent about liver; spleen very much enlarged extends for about 6 fingers breadth below ribs. No enlarged glands; passes water well; no albumen or sugar in urine.

Blood: red globules diminished in quantity, heaped up into groups or masses instead of forming regular rouleaux and net work; absolute increase of leucocytes. The leucocytes of various sizes and more or less deformed. In some of them the contents are protruding out. What seems to be more characteristic are the considerable number of granules which are either solitary or coalesce together so as to form circles or even chains.

Treatment: quinine and digitalis.  
Discharged. *March 20th*.

Case No. 5. Chumiah, aged 29, admitted 10th of February 1879.

*Previous history* :—Of Calcutta parentage—born in Mauritius; eight years in the Police. For the last 13 months he has been stationed at Plaine Lauzun; has not suffered much from fever; was two or three days sick before admission.—The present illness began with fever and cough without rigors. He knew he had fever from the heat of his body and pains. During those two or three days that he presented the above mentioned symptoms the patient had vomiting of a glairy kind and diarrhoea; the diarrhoea was of a watery character. The stools did not contain any blood and there were no colicky pains.—The diarrhoea lasted two days.

*On admission* :—The feet were slightly swollen; no vomiting or diarrhoea; loss of appetite; nothing to be observed about lungs, heart, liver or spleen. The patient had some cough due to laryngitis.

*February 19th* :—Patient swollen from head to feet. The swelling came on suddenly and coincided with the elevation of temperature marked in the annexed temperature sheet. On minute examination, sonorous rales are heard all over the chest, and the following physical signs detected about the pericardium and heart :

Apex beating in the sixth intercostal space and outside the nipple. Well marked undulations in all the large vessels—no thrill. On percussion no marked increase on the area of dulness. On auscultation, the heart is labouring, pulse weak, frequent and depressible; the impulse of the heart seems to be distant, and there is in the large bloodvessels a murmur which is distinctly observed. Treatment: *Liq. potassæ acetatis*, *tinct. scillæ* & *infus. Buchu*; one ounce every 4 hours.

*February 24th* :—No albumen or sugar in the urine; well marked dyspnoea, respiration 42 in a minute; slight thrill, undulations well marked; dulness positively increased; sonorous and sibilant rales; impulse of the heart strong; two murmurs are heard at apex and base, and at base there is with the second sound a soft and aspirative murmur, more marked on the right than on the left side of chest.

*Do.* 25th :—Had epistaxis several times, subconjunctival ecchymosis on the left eye; pulse depressible and thrill in all the large arteries.

*Do.* 29th :—Blood examined to-day—pale and watery—absolute diminution of red globules, absolute increase of leucocytes. The globules do not form rouleaux and network, but small groups here and there; a great many small light refracting granulations also grouped together either in circle or in chain.

*March 2nd* :—Patient bled yesterday from nose and died at 8.20 p. m.

*Post mortem examination.*

Twelve hours after death.

*Rigor mortis* well marked; body infiltrated with serosity from head to feet. On making an incision through skin and cellular tissue the blood is found irregularly diffused into the subcutaneous tissue and granular looking, having an oily appearance. An incision being made from chin to pubis, the abdominal viscera are examined in mass: they are all in their normal positions, diaphragm on both sides between 5th and 6th ribs.

Thorax opened, its left cavity contains about a pint of clear serosity and its right is nearly empty. All the organs in their proper position. Pericardium contains about 2 ounces of clear serosity—no lesions of pericarditis. Heart enlarged, dilated, soft and flabby, its cavities empty, except left ventricle which contains a little blood (fluid). Long decolorized coagula in the large blood vessels and auricles; tricuspid valves slightly thickened; pulmonary valves competent; mitral covered with vegetations at its edges and thickened; aortic valves incompetent and almost cartilaginous. Old pleuritic adhesions on right side; both lungs studded on their surface and in their tissue with patches of pulmonary apoplexy, on the surface of each lung patches of sub-pleural emphysema are seen.

*Abdomen* :—Spleen very pale; capsule not adherent, but thickened; with fibrous patches and near its apex; serous granulations—weight 5 ounces—splenic tissue pale and hard in consistence.

*Liver* fatty and congested; the lobules are seen to be distinctly distended with fat, and the interlobular vessels are congested, and the tissue of the organ is granular on section—*Gall-bladder* full of dark thick bile. *Kidneys* deeply congested—softened.

*Brain* substance pale—slight quantity of serosity in the ventricles. *Stomach* empty.

*Intestines* empty and healthy. *Bladder* empty. The marrow of left tibia, on examination, was found to be yellow externally and softened and red internally.

*Cases reported by Dr. Chastellier.*

No. 1. Ramsonndur, a Calcutta creole Indian, aged about 20. Was admitted to Hospital from Savane on the 9th of January, with his father "Jouram," who was labouring under the same disease.

It was only 2 or 3 days after their arrival, that it was found that "Ramsoundur" was engaged as a labourer on Riche Bois Estate.

He stated that he had never had fever, that he had always enjoyed excellent health, that about Christmas time he had suffered slightly from diarrhoea, and a short time after observed that he could not walk because his legs were swollen.

His father suffering from the same symptoms, they decided upon coming to the Barkly Asylum Hospital to be treated.

On admission: No fever, no diarrhoea; on percussion, no noticeable hypertrophy of liver or spleen, no puffiness of face, no sign whatever of anæmia, with the exception of swelling of both legs.

Under the influence of appropriate treatment, a liberal diet, and change of air, the swelling gradually diminished, and on the 22nd the patient feeling quite well, asked to be discharged from hospital; as however, the œdema of the legs, had not altogether disappeared, I advised him, to remain a few days longer.

On the 24th he had his breakfast at the usual hour, between 10 and 11 a. m.; at 3 o'clock coming back from the bath room he fainted, was carried to his bed, and died a few minutes after.

Autopsy performed 23 hours after death. Cadaveric rigidity slightly marked; body well developed; abdomen slightly distended. No infiltration of subcutaneous tissue, not even of the inferior extremities; no œdema of scrotum or glands. On removing the skull-cap, the brain is found healthy, no effusion within the cranium.

Lungs and heart healthy; the heart contained neither blood nor fibrinous clots. A small quantity of half digested food found in the stomach which is healthy as also the intestines throughout. A small quantity of urine in the bladder. Kidneys somewhat congested but sound. The liver very soft in texture weighs 3 lbs. 2 oz., the spleen weighs 0 lb. 15 oz., and this organ is found of the consistence and appearance of anchovy paste.

No. 2. Balgobin Risall who had been admitted suffering from Acute Dropsy. This man, a Dhoby residing at Curepipe, entered the Hospital on the 17th instant. He stated that he had, but rarely, had attacks of intermittent fever; that about a fortnight before coming to Beau-Bassin, he had been seized with vomiting and diarrhoea, and had noticed that his legs were swollen. He had taken several doses of Anti-Glaireux or Leroy, or both, without any beneficial effect.

On Admission: face, trunk, upper and lower extremities œdematous, tongue clean, urine scanty, bowels constipated; great difficulty in breathing, pulse thready, temperature of skin normal, except the legs which are hot to the touch and of a reddish hue. The symptoms increased in intensity and the patient expired on the 21st at 10.15 A.M.



Autopsy performed 28 hours after death : The whole body especially the face and scrotum enormously swollen. The abdomen very much distended.

On the legs, arms and abdomen were several bullæ 2 or 3 inches in diameter, full of yellowish serum, such as would be produced by scalds or by the application of cantharides.

On section the subcutaneous tissue was found infiltrated with fluid. The lungs were gorged with black blood as also the right auricle, and ventricle ; the muscular tissue of heart, pale.

The pericardium contained about 4 or 5 ounces of a dirty red fluid. The liver was enlarged, fatty, and a finger could easily be driven into its substance. The spleen weighed 1 lb 2 oz., and was a brown-red semi-liquid mass. The kidneys healthy ; notwithstanding the man's assertion, I believe that he had had repeated attacks of malarial fever before coming to Hospital.

*Cases reported by Dr. Stone.*

Bel Etang Hospital, Dec. 30th 1878.

No. 1. *Laljee* :—Admitted December 12th. States he had been sick for a fortnight before admission, had vomiting and diarrhoea for four days, and fever for six days, burning feeling in the abdomen, the arms and legs swelled after the vomiting ceased ; the body did not swell. The legs are still œdematous, the swelling however only coming on about 4 p.m., being absent in the morning. He regained his appetite as soon as the swelling appeared, and has never been confined to bed since his admission.

No. 2. *Seecharun* :—Admitted December 16th. Had been sick for a week previously with fever, vomiting, and diarrhoea. When these symptoms ceased the legs became hard and swollen. The legs are now œdematous, the swelling always increasing in the afternoon, there being none in the morning. Has not been confined to bed since his admission and appears very well.

No. 3. *Bidessy* :—Admitted a fortnight ago. States he was sick for a week before admission. Had vomiting and diarrhoea ; fever also supervening on the second day. These symptoms lasted a week, then the legs swelled and he suffered pain in them. There is œdema now, the swelling comes on in the afternoon—none in the morning. Very weak but otherwise well ; has not been confined to bed since admission.

N. B.—The treatment has been iron and cinchonidine. The declared absence of œdema in the morning was supposed to be owing to the nights rest there being no periodical exacerbations of pyrexia in the afternoon, but only of the swelling. But on the occasion of the visit at which these notes were taken there appeared so much precision and uniformity in the men's statements that Cinchonidine was ordered in the way usual when a periodical return of ague is to be prevented. Neither the men, nor the Dispenser-steward were at the hospital at the visit of yesterday. There have been no deaths at "Bel Etang" from this disease and no more serious cases at the hospital than the above.

*Autopsy reported by Dr. Dardenne.*

Autopsie de Ragoonandun, faite 9 heures après la mort. Habitude extérieure : corps généralement amaigri, pâle, malgré sa couleur noire ; teinte grisâtre, l'abdomen est gonflé ; les jambes à demi-fléchies sur les cuisses ne peuvent se défléchir que par une incision des tendons. Là où existaient les phlyctènes pendant la vie, l'épiderme est enlevée ou affaissée et présente une coloration beaucoup plus noire que tout le reste du corps. Les yeux sont encaqués, les paupières closes, la peau ridée aux membres inférieurs et supérieurs et également à la face. Pas de raideur cadavérique aux membres supérieurs et aux hanches. Les jambes surtout sont très dures au toucher, sensation de bois, l'incision de ces parties laissait voir un tissu cellulaire revenu sur lui.



même et dur ; les aponévroses des muscles contiennent de la sérosité, les muscles eux-mêmes sont pâles et macérés. Plus haut vers les cuisses le tissu cellulaire sous-cutané est encore infiltré d'une sérosité limpide ; aux lombes et aux fosses iliaques l'infiltration est *gélatineuse*. A l'abdomen et à la région antérieure de la poitrine, infiltration du tissu cellulaire. Rien au dos que des tâches livides cadavériques. Le long de la colonne vertébrale, les muscles sont plus rouges qu'à l'état normal, cette coloration est due à la congestion hypostatique.

*Crâne.*—Enveloppes cérébrales hyperémies, à l'exception de la dure-mère. La pie-mère et l'arachnoïde sont infiltrées ; les ventricules contiennent un liquide séro-sanguinolent ; les plexus choroïdes sont infiltrés et congestionnés. Le cerveau est injecté et paraît plus ramolli dans certains endroits. Œdème de la pulpe cérébrale. Pas d'exsudat ; cervelet sain.

Le canal médullaire examiné avec soin fait voir la moelle ramollie à son renflement lombaire ; elle n'est pas hyperémiee. L'ouverture du rachis laisse écouler une certaine quantité de liquide séro-sanguinolent que je n'ai pas pu apprécier.

*Thorax.*—Épanchement jaune-citrin dans les cavités pleurales, (500 grammes environ dans chaque).

Poumons congestionnés, œdématisés dans toute leur étendue et laissant échapper à la coupe un liquide sanguinolent spumeux. Le sang des vaisseaux est noir.

*Péricarde*, 35 grammes environ de sérosité légèrement sanguinolente, cette enveloppe est parfaitement saine.

*Cœur*, normal, pâle et flasque. Le ventricule droit contient un sang noir, poisseux et des caillots organisés enchevêtrés dans les colonnes charnues.

Le ventricule gauche renferme également un sang noir et des caillots mous.

Les oreillettes sont complètement distendues par des caillots noirs. Les gros vaisseaux laissent écouler, à leur incision, un sang noir demi-liquide.

*Abdomen.*—Le péritoine contient un litre environ de liquide jaunâtre. *Rôte normale.* Epiploons et mésentères fortement congestionnés. Les intestins sont entassés et ne contiennent pas de gaz ; pas d'ascarides lombricoïdes, pas d'ankylostome duodénal au gros intestin, on voit quelques ulcérations et de petits abcès gros comme la tête d'une épingle dans le colon descendant. Les veines mésentériques sont déve-  
loppées, dilatées, contiennent un sang noir et poisseux.

*Estomac* hyperémie, arborisations fines nettement dessinées, pancréas normal ; le foie est énorme, à peu près le double de son volume ; le sang de la veine porte est comme une bouillie noire ; la vésicule biliaire est déprimée, contenant peu de bile.

*La vessie* contient quelques grammes d'urine, un peu rétracté ; les reins sont légèrement congestionnés.

*Case reported by Dr. Clarenc.*

Mahomed Neivery, âgé de 50 ans, jardinier, se présente à moi le 14 Décembre 1878.

Sa maladie remonte à la fin de Septembre ou aux premiers jours d'Octobre ; elle a débuté par de la diarrhée très abondante et surtout fréquente, suivie au bout de trois jours d'un œdème occupant les extrémités inférieures.

Cette enflure s'est maintenue jusqu'à ce jour dans ces limites et constitue le seul symptôme saillant de la maladie. Sans elle cet homme ne se croirait pas malade.

Je lui délivre une solution de citrate de fer et de quinine pour six jours et il ne reparait plus jusqu'au 5 Janvier.

A cette date il vient à une consultation et je lui donne de la teinture de quinquina pour trois jours.

Le 21 Janvier il vient réclamer des pilules hydragogues dont il dit avoir constaté d'excellents effets sur des voisins. Il ne paraît d'ailleurs nullement préoccupé de son état.

Le 5 Février il reçoit encore 3 pilules et je ne l'avais pas revu quand j'apprends que le 11 il est allé au poste de police, par un temps pluvieux, se plaindre qu'il était empoisonné par une personne de son entourage et qu'il a succombé dans la journée.

Autopsie 14 heures après la mort.

Rigidité cadavérique conservée.

L'œdème des extrémités inférieures peu marqué. La peau de cette région incisée laisse écouler une sérosité sanguinolente abondante.

Le tissu adipeux sous-cutané est généralement conservé en partie, les muscles des parois de la poitrine et de l'abdomen ont conservé leur aspect à peu près normal.

Le *péricarde* contient environ 100 grammes d'un liquide clair et citrin.

Le *cœur* de volume normal, contient dans ses cavités un peu de sang noir dans lequel on trouve quelques caillots fibrineux à cheval sur les valvules qui ne présentent aucune altération.

Les *plèvres* contiennent une grande quantité (1 litre environ) de sérosité citrine, mais ne présentent pas d'adhérences à droite.

Il n'en est pas de même à gauche où pour extraire le *poumon* mon confrère Mr. Vinson est obligé de l'arracher en le déchirant, ce qu'il n'obtient qu'au prix des plus grands efforts. Cette partie du *poumon* est le siège d'une induration inflammatoire bien marquée.—Quand on l'incise il s'en écoule un liquide séro-sanguinolent et pumieux.

Le *foie* est normal quant à son volume—la section de cette organe laisse écouler en abondance un liquide séro-sanguinolent.

La *rate* est très petite pesant seulement 42 grammes.

Les *reins* sont légèrement injectés.

La *vessie* contient quelques grammes de liquide.

Le *péritoine* est plus ou moins congestionné et enflammé principalement dans les parties attenantes au gros intestin.

L'*estomac* dilaté par des gaz offre une injection bien marquée de tous les vaisseaux superficiels. Il contient une assez grande quantité de liquide semblable à de la purée de dholl.

Les *intestins* sont plus ou moins enflammés. Dans l'intestin grêle une matière jaunâtre analogue à celle qu'on a trouvée dans l'estomac, recouvre la muqueuse qui semble macérée dans ce liquide.

Dans le *gros intestin* on remarque une injection inflammatoire de toute la muqueuse, que l'on détache par le grattage en une espèce de débris sanguinolent, surtout au voisinage de l'S iliaque.

Tout le système veineux de la boîte crânienne est gorgé de sang; les ventricules cérébraux contiennent une assez grande quantité de liquide.

La section du cerveau donne issue à des gouttelettes de sang indiquant une congestion de cette organe.

La dure mère se détache difficilement et présente un épaissement marqué en plusieurs endroits.

*Autopsie reported by Dr. Vinson.*

La rigidité cadavérique est complètement abolie. L'œdème de la face et du cou existe au plus haut degré. Les membres supérieurs sont presque complètement infiltrés. Aux membres inférieurs, les pieds seuls sont œdématisés. Le pénis et le scrotum sont le siège d'un reste d'infiltration. L'anus en béant, souillé par du liquide fécal jaune verdâtre. L'abdomen est à peine saillant. La poitrine n'est infiltrée qu'au voisinage du cou et des épaules. Sur la peau des bras, sur celle de la poitrine, existent çà et là des phlyctènes (bulles et vésicules) de grosseur variable depuis celle d'un pois rond jusqu'à celle d'une noix. Il s'en écoule par incision un liquide jaune brun. La peau est manifestement épaissie dans toute la région épigastrique. Une sérosité sanguinolente s'écoule des narines, un peu d'écume de la bouche. Les yeux sont fermés, la cornée est opaque.

La section des parois de la poitrine et de l'abdomen, ne laisse écouler que quelques gouttes de sérosité incolore. La peau ne conserve plus de tissu graisseux ; les muscles sont amaigris, décolorés, comme ayant subi depuis plusieurs jours une macération dans de l'eau ; leurs fibres sont lâches dissociées, légèrement gélatineuses.

*Examen des Cavités.—1o. Abdomen.*

Le péritoine n'offre aucune trace d'inflammation bien qu'il contienne environ cent cinquante grammes d'une sérosité brunâtre ; les épiploons sont dépourvus de tissu graisseux, les ganglions mésentériques sont à l'état normal. L'estomac est moyennement développé par des gaz ; il ne contient aucun liquide. Sa face extérieure, surtout en arrière est colorée en brun-rougeâtre. Les intestins grêles, le gros intestin présentent une forte coloration brun rougeâtre, qui verdit peu à peu à l'air et se change bientôt en noir verdâtre mêlé de rouge noir à la fin de l'autopsie, il s'en exhale une odeur extrêmement fétide qui attire des essaims de mouches.

La muqueuse de l'estomac est légèrement épaissie, et recouverte d'un mucus noirâtre ; en détachant le mucus, en lavant la surface de la muqueuse, je ne trouve aucune trace d'ulcération ni d'inflammation, la muqueuse reste pâle, la coloration rouge brun appartient au tissu sous muqueux.

L'intestin grêle offre à l'intérieur une coloration rouge brun, lorsqu'on a enlevé le mucus jaune verdâtre qui recouvre la muqueuse.

Le gros intestin offre les mêmes caractères d'inflammation passive, c.-à-d. une coloration rouge foncé sans altération de la muqueuse qui est recouverte d'un mucus jaune verdâtre mêlé à des traces de diarrhée de même couleur.

La rate ne présente aucune altération ; son volume est normal.

Le foie est notablement développé—il déborde de deux à trois centimètres le rebord des fausses-côtes. Son tissu est infiltré, ramolli et cède à la moindre traction, à la moindre pression. Il n'est le siège d'aucune congestion active ou passive, d'aucune inflammation. Il est plutôt un peu pâli, et en comprimant le tissu entre les doigts il s'écoule une sérosité jaunâtre. La vésicule biliaire est épaissie et contient un liquide jaunâtre qui a transsudé sur le gros intestin.

Les reins sont un peu plus volumineux que nature. Leur coloration est d'un brun noirâtre ; la substance corticale est presque noire. La substance tubuleuse est d'un rouge foncé. Ils paraissent être le siège d'une congestion passive.—La vessie est vide.



Le Pancréas est plus pâle que normalement ; il est notablement infiltré.

#### 20. *Thorax.*

Le péricarde et la plèvre médiastine sont adhérents ; la plèvre droite est complètement adhérente, la plèvre gauche n'offre d'adhérences qu'au sommet et à la base du côté du diaphragme. Il existe de ce côté un épanchement de sérosité roussâtre que j'évalue à 300 grammes environ. Le péricarde est distendu par son adhérence antérieure mais il ne contient que 30 grammes environ de sérosité roussâtre.

Le cœur est de volume normal, ses cavités sont vides ; c'est à peine si le ventricule gauche contient un petit caillot de sang, de la forme et du volume d'une épingle ordinaire. Le tissu musculaire est pâle et flasque comme partout ailleurs.

C'est avec quelque difficulté qu'il m'a été permis d'enlever le poumon gauche, l'adhérence était telle au sommet que j'ai dû en déchirer le parenchyme, il en a été de même à la base au niveau de la plèvre diaphragmatique.

La surface du poumon offrait une teinte d'un gris pâle parcourue par des vaisseaux noirs. Le lobe supérieur conservait une certaine élasticité et crépitait assez bien à la pression ; la section laissait suinter un liquide séreux grisâtre et spumeux ; Le lobe inférieur était fort peu crépitant. La pression du doigt y laissait son empreinte. Le tissu divisé laissait suinter en arrière une sérosité légèrement roussâtre, à peine écumeuse. En avant les cellules pulmonaires sont infiltrées d'une sérosité plus pâle, les canalicules bronchiques et le tissu cellulaire interalvéolaire sont épaissis et ressemblent à des grains de riz cuit mais doués d'une plus grande résistance. Le tissu pulmonaire à la partie inférieure de ce lobe est remarquablement friable et infiltré. Grâce à cette infiltration, tout le lobe inférieur faisait pression contre les parois du thorax.

À droite, je n'ai pu détacher le poumon. Il était intimement adhérent aux parois costales ; je n'ai pu que déchirer le tissu pulmonaire qui était fortement infiltré de sérosité d'un gris roussâtre et comme puriforme.

Les bronches contenaient une sérosité légèrement rousse et spumeuse.

30. *Crane.*—Le péricrane est infiltré ; les muscles temporaux sont gélatinoformes.—Le cerveau est ramolli. Les plexus choroïdes sont infiltrés ; les ventricules contiennent une sérosité considérable légèrement roussâtre. La coupe du cerveau laisse suinter un peu de sérosité incolore. La duremère est à la base plus adhérente que de coutume.

#### ETIOLOGY.

##### *Predisposing Causes :*

*Race* :—The disease as has already been stated, was almost entirely confined to the Indian population, especially in the country districts ; and amongst the Indians, it was remarked that those from Calcutta were more liable to be affected than those from Madras. Europeans were entirely exempt from the malady.

In the town of Port Louis, the general population did not entirely escape as will be seen from the following table prepared by Dr. Beauguard, showing the number of those who applied for advice at the Central Dispensary, and distinguishing between the General and the Indian populations.



*Return of Cases of Acute Dropsy from the 1st of January to the  
31st March 1879.*

	General Population.		Indian Population.		TOTAL.	
	M	F	M	F	M	F
Receiving room.....	11	2	62	20	73	22
Medical Advice.....	7	9	6	8	13	17
Domiciliary visits...	1	8	3	1	4	9
Total of each...	19	19	71	29	90	48

This incidence of the disease on a particular race was one of the most remarkable features of the epidemic, and doubtless depended on circumstances connected with the occupations, habits, sanitary conditions, or food of the Indian population.

*Occupation*:—The majority of the Indians are engaged as laborers on the Sugar Estates. This class no doubt suffered severely from the disease, which broke out on almost every camp; but it has not been shewn that they suffered more than their compatriots occupied in cultivating their own gardens, engaged in business, or employed as messengers, servants, or policemen. That overwork or exposure may have concurred with other agencies in predisposing to the disease may be inferred from the fact that women and children were less liable to be affected than men.

*Habits*:—The Indian, whether engaged as a laborer or otherwise, manifests a marked preference for camp life. His social instincts are gregarious. It is observed that those who are not engaged on estates, and who are thus free to live as they choose, voluntarily congregate in camps, consisting of little huts closely huddled together, often overcrowded and dirty. In this way the Indians in the Colony may be said to live apart from the rest of the community leading an exclusive social life of their own.

Although the unsanitary state of the camps cannot be accepted as an explanation of the development of an altogether exceptional disease, its spread among a population so circumstanced can easily be understood, while the habits of the people, at once gregarious and exclusive may have tended to promote its spread amongst themselves, and limited its diffusion among other sections of the community.

*Food*:—The food of the Indians consists almost entirely of rice, with the addition of dholl, green brédes and salt fish; and this is seldom varied. This diet is of low nutritive value, being deficient in albuminous matters. Although adequate for

the ordinary physiological demands of the system, it is incapable of developing a reserve of resistance to debilitating diseases. That such a diet is not incompatible with health is evident, for whole nations live upon it, and an important part of the world's work is done upon a diet consisting chiefly of rice. But just as the highly nitrogenized food of the Englishman renders him peculiarly liable to that class of diseases which depends upon plethora; so a diet deficient in albuminous matters undoubtedly predisposes to anæmia.

*Age and Sex*:—Infants at the breast were seldom attacked; children under puberty and women, were less liable to the disease than men. The liability of males was about twice that of females. This, however, applies only to adults for no difference as regards sex was observed in children. [See Tables].

TABLE E.

*Cases of Acute Anæmic Dropsy occurring on Surinam Estate.*

Mois.		Hommes	Femmes.	Enfants Féminin.	Enfants masculin.
Déc.	17	1	...	...	...
"	26	1	...	...	...
"	31	2	...	...	...
Jan.	3	1	...	...	...
"	7	5	5	2	...
"	8	2	...	...	1
"	10	1	...	3	4
"	12	2	...	...	1
"	14	4	...	...	...
"	16	1	2	1	...
"	18	2	...	...	...
"	19	1	...	...	...
"	22	1	...	...	...
"	26	0	4	2 (8 & 10 ans)	2 (8 & 10 ans)
"	27	0	0	1 (12 ans)	0
"	28	5	2	3 (10,13,18 ans)	1 (10 ans)
"	29	0	2	0	0
"	30	0	0	0	0
"	31	2	0	0	0
Fév.	1	3	0	1 (18 ans)	2 (9 & 14 ans)
Total...		34	15	13	11

*Cases of Acute Anæmic Dropsy occurring on Bel Air & l'Union Estates.*

Mois.		Hommes	Femmes.	Enfants féminin.	Enfants masculin.
Janv.	13	...	...	...	1
"	17	1	1 (décédé)	...	1
"	24	1	1	...	...
Total...		2	2	...	2

*Cases of Acute Anæmic Dropsy occurring on Terracine Estate.*

Mois.		Hommes	Femmes.	Enfants féminin.	Enfants masculin.
Janv.	6	1	...	...	...
"	9	1	1	...	...
"	10	0	...	...	...
"	14	1	...	...	1
"	15	1	...	...	1
"	16	1	...	...	...
"	17	1	...	...	...
"	22	1	...	...	...
Total...		7	1	...	...

*Cases of Acute Anæmic Dropsy occurring on Bénarès Estate.*

Mois.		Hommes	Femmes.	Enfants féminin.	Enfants masculin.
Janv.	7	1	..	..	..
"	10	5	1	..	..
"	13	2	1	..	..
"	16	3	..	..	..
"	21	2	..	..	..
"	22	..	1	..	..
Total..		13	3	0	0

*Cases of Acute Anæmic Dropsy occurring on Rivière des Anguilles Estate.*

Mois.		Hommes	Femmes.	Enfants féminin.	Enfants masculin.
Janv.	23	1	1	1	0
Total..		1	1	1	0

*Cases of Acute Anæmic Dropsy occurring on Bel Ombre Estate.*

Mois.		Hommes	Femmes.	Enfants féminin.	Enfants masculin.
Janv.	27	3	0	0	0
"	28	2	0	0	0
"	30	1	0	0	0
"	31	3	0	0	0
Total..		9	0	0	0



*Climate & Season*, seemed to have no influence upon its spread or mortality. It began in a district, which is reputed to be healthy and free from malaria, and it afterwards spread to the unhealthy districts, but did not appear to be either more common or more fatal in the latter than in the former.

It first appeared in the healthy season, after a long drought; but the change of season, and the supervention of the rains did not stay its progress or modify its character. In fact it commenced under one set of climatic conditions, and spread and continued through another.

*Determining Cause.*—Of the determining or exciting cause of this disease we know nothing. We may assume indeed that a disease so distinctive and peculiar was due to some specific cause. We cannot admit that any common meteorological conditions—extreme heat, variations in temperature or droughts could have given rise to this Epidemic.

It has been supposed by some that this disease was due to malaria; but it seems to us that there are strong objections to this theory. Those who hold that the dropsy was only a new manifestation of that protean malady do not explain why the disease was never known during the previous eleven years, nor why it has now died out. They do not explain why it appeared in a district which was least likely to form the starting point of a hitherto unknown form of malarial poisoning, nor why the malarial cachexia should suddenly declare itself in those who had never suffered from fever, or exhibited any symptoms of that malady. Its epidemic spread; its restriction to a race; the suddenness of its attack; the comparative shortness of its course, leaving the patient in perfect health, all militate against the view that it was only an acute form of malarial cachexia. Then there was the skin eruption, which has never been seen in Mauritius or elsewhere, so far as we know, as a result of malaria. Such considerations, and others that could be urged, lead us unhesitatingly to reject the theory that the disease was an acute malarial cachexia, even if we were prepared to admit that any *cachexia* could be *acute*.

*Mode of propagation:*—It was observed that when one member of a household took the disease, some of the others almost invariably became affected within a few days. In the same way, when it appeared in a camp it rarely remained confined to the house in which it broke out, but subsequently spread more or less extensively throughout the neighbouring huts. In a few instances it was observed to break out in a locality shortly after the arrival of some person suffering from the disease. On the other hand, the attendants on the sick in hospitals rarely contracted the disease. These may be said to be all the facts positively known regarding the spread of the disease.

Some, judging from the way in which it spread when introduced into a house or locality, regarded it as contagious, but the great majority of practitioners adopted the opposite view.

The disease was certainly not infectious or contagious in the sense that small pox, measles, or scarlet fever are contagious; but the ways by which a poison may be diffused and transported are so innumerable and so little understood, and the observations bearing upon the propagation of the disease are so few that the



question of its contagiousness cannot be regarded as finally settled. \*

\* On the 9th of January 1879, Dr. Bolton of Souillac, on notifying the appearances of the disease in the district of Savanne, says "At Surinam the disease seems to have been imported by a man of Mr. Jauffrey's Estate at Moka, and who died on this Estate a few weeks ago."

The following extracts give the facts which Dr. Clarenc advances in support of contagiousness of the disease. Without committing ourselves to any conclusion upon the point, such facts should certainly not be ignored.

J'ai déjà signalé ce fait important; que si la maladie venait à entrer dans une case tous les membres de la famille qui l'habitait payaient leur tribut à la maladie les uns après les autres; que dans le camp d'Helvétia dans une longère composée de 8 cases, une seule n'avait pas été visitée par la maladie, celle qui est au vent. J'ai eu depuis l'occasion de constater le même fait dans le camp de M. Léon Jauffret. J'exprimai l'opinion que ces faits, s'ils ne fournissent pas un argument péremptoire en faveur de la contagion, imposaient au moins la plus grande réserve à ceux qui pouvaient être portés à la nier.

Depuis, une série de faits, à mon avis concluants, m'a convaincu que cette affection pouvait se communiquer d'un sujet malade à un sujet sain. Vous allez en juger vous-même :

Vous vous rappelez sans doute que lors de votre visite au Quartier Militaire j'appelai votre attention sur ce fait que le camp de l'établissement "Alma" entouré de mares, ne comptait pas un seul malade atteint de l'épidémie régnante. Je vous montrai d'un autre côté au Quartier Militaire, une famille dont tous les membres étaient malades. Parmi ces derniers se trouvaient trois jeunes gens engagés au service de M. Robillard entrepreneur sur l'établissement "Alma." Eh bien, l'infirmier de ce dernier établissement qui les visitait a été un des premiers sinon le premier atteint de l'épidémie régnante. Le *second infirmier* a tombé malade depuis.

Un homme récemment engagé sur l'établissement Bonne Veine, quitte la Poudre d'Or où il travaillait, sans avoir vu un seul cas d'hydropisie, il descend au Quartier Militaire chez un camarade atteint de cette affection et peu de jours après il en présente lui-même tous les symptômes.

Un serviteur de Mr. Lesur, le premier pris dans sa cour, logeait dans la case du gardien de M. Ritter, un des hommes les plus gravement atteints qu'on pût voir (il a été examiné par nos confrères MM. Beaugard, A. et F. Bonnefin, Chastellier et Rogers) qui lui-même avait probablement contracté la maladie aux Pailles, dans la case d'un camarade mort de cette affection et dont la veuve était très gravement malade.

Le seul serviteur de Mme Veuve Jauffrey qui ait présenté les symptômes de l'épidémie avait des relations fréquentes avec des hommes du camp de M. Le Coultre.

Le seul serviteur de M. Hewetson atteint de cette affection, se trouvait en contact tous les jours au Port avec des hommes des Docks hydropiques.

Son fils a été pris à son tour et si on devait admettre que ces cas sont nés dans la case de cet homme on ne s'expliquerait pas quel mal eut débuté précisément par celui que ses occupations en étaient le plus souvent éloigné.

Une seule femme indienne de Madras a présenté les symptômes de la maladie sur l'établissement "Agrément;" elle soignait une famille d'Indiens de Calcutta atteinte de l'épidémie.

Sur le même établissement, la seule femme *créole* hydropique est mariée à un Indien malade, et le frère de celui-ci, engagé sur l'établissement "Mon Désert" a contracté l'affection en allant leur donner des soins.

On ne trouverait pas dans un rayon de deux milles et peut-être plus encore une autre personne *créole* atteinte par l'épidémie.

Une femme *créole* la seule à ma connaissance qui présente au

*Mortality* :—As a rule those who succumbed to acute anæmic dropsy were the old, the weak and the cachetic. In one series of 20 cases we find that 5 proved fatal; and in another series out of 96 patients, 8 died; but it must be borne in mind that the milder cases never came under treatment or observation. The average mortality certainly did not exceed 2 or 3 per cent.

The total mortality during the epidemic, as will be seen from table D, amounted to 729. It thus appears, that the disease, although not a fatal one, carried off a large number of victims, from its wide diffusion.

#### *Nature of the Disease.*

The dropsy so characteristic of this affection was evidently the result of the accompanying anæmia; for none of the other pathological conditions known to induce anasarca were present. When the albumen in the blood is reduced below a certain proportion dropsy necessarily results, exhibiting itself in cedema of the feet and legs, and, in its severer forms, leads to effusions into the serous membranes as was the case in this disease.

Assuming then, that the dropsy resulted from anæmia, the question next arises,—what was the cause of the anæmia? Anæmia as we meet with it in our ordinary practice is due either to one or more of the following causes, viz:—(a) Insufficient replacement of the tissue-elements, which are continually undergoing change, from defects in the quantity or quality of the food, or impairment of the digestive or assimilative processes. (b) Accelerated metamorphosis or loss of tissue, from over-work, extremes of temperature; excessive physiological or pathological discharges, and certain toxic agents. (c) Impaired sanguification from chronic diseases of the cytogenic organs,—spleen, lymphatic glands, medulla of the bones. It is in this way that malaria, by its action on the spleen gives rise to anæmia. It will be seen that all these causes act slowly upon the constitutions and the anæmia so induced is either sub-acute or chronic.

Acute anæmia is practically unknown in Europe excepting, as a result of hæmorrhage; and before the advent of the late epidemic it was equally unknown in Mauritius. It is not improbable, however that anæmia may be suddenly induced by certain miasmata, and that this condition underlies several obscure diseases endemic in certain parts of the east, among which may be included both the true beriberi, and the beriberi of Rochard.

In speaking of these affections as anæmic it is not implied that the anæmia is simple, involving merely an actual or relative diminution of certain of the constituents of the blood. On

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Quartier Militaire les symptômes de cette maladie habite une case voisine de celle de deux Indiens hydropiques.

Si cette série de faits n'est pas concluante je me demande ce qu'il faut de plus. On objectera les cas négatifs des personnes exposées à la contagion et qui ont résisté jusqu'ici aux atteintes de la maladie. Ces cas négatifs se retrouvent dans toutes les épidémies, je les ai constatés personnellement dans le choléra, le typhus, la variole, la rougeole, la fièvre typhoïde et la dysenterie épidémique, toutes affections dont la contagion ne fait doute que pour quelques personnes à parti-pris. Et cependant je n'ai jamais, dans les diverses épidémies, vu si fatalement tous ou presque tous les membres d'une famille payer leur tribut à l'épidémie.—*Dr. Clarence.*



the contrary, the difference in the symptoms of beriberi and acute anæmic dropsy seems to indicate that the blood changes in these affections are not only quantitative but qualitative,—not *simple* but *specific*, and caused by different miasms,—using that word in its widest sense.

In acute anæmic dropsy, the poison first manifested itself by its action on the sympathetic system. The vomiting and purging which ushered in the disease indicated vaso-motor paralysis affecting the abdominal viscera; when the morbid influence was more intense fever was super-added. It was at this period that the anæmia appeared. Patients as a rule exhibited no signs of cachexia up to the period when the diarrhoea and vomiting commenced. Whether the morbid cause acted directly upon the blood, or indirectly through the blood glands is not clear. We may be sure that the vomiting and diarrhoea did not *cause* the anæmia but were simply concurrent symptoms.

*Relation of acute anæmic dropsy to beriberi:*—There has in reality been less difference of opinion upon this point than may be supposed. Those members of the profession who inclined most to the view of their identity were the first to point out certain important differences between the disease witnessed here and that described by authors as beriberi. On the other hand those who maintained that the two diseases were essentially distinct admitted that they resembled each other in certain particulars.

The term beriberi has unfortunately been very loosely defined and authorities differ as to the essential symptoms of the disease. Dr. Rochard confines the term to an acute dropsy, without paralysis; while English authors without exception apply it to an acute disease, the leading features of which are anæmia, dropsy, numbness, and paralysis of motion and sensation.

Rochard describes a disease which was observed on board the French coolie Ships “Le Parmentier,” “L’Indien” and the “Jacques-Cœur” in 1862 & 1863. This disease appeared as an epidemic among the coolies on these three ships, and was carefully studied by the Medical Officers in charge; and it is from the notes of these Officers that Rochard has compiled the description of beriberi which appears in the “Nouveau Dictionnaire de Médecine et de Chirurgie.” As a description of the particular disease which appeared among the Coolies on these vessels, Rochard’s Article is, no doubt, both full and accurate.

The first symptom in these epidemics was œdema of the lower extremities, spreading to the trunk and finally involving the serous membranes. This dropsy was accompanied with dyspnœa and epigastric pain. As the effusion into the pleuræ and pericardium increased, the respiration became more and more embarrassed, until syncope or coma terminated the sufferings of the patient. The disease was not accompanied with fever; the urine became scanty and coloured as the disease advanced, but was not albuminous, and the bowels were obstinately constipated.

Rochard further maintains, that this disease described by him is beriberi—and *the only form* of the disease. He excludes paralysis entirely from the symptomatology of the malady. All previous writers having as he supposes confounded beriberi with barbiere, he holds that the different forms of the disease described by them “ne reposent que sur des erreurs de diagnostic.”



In this view of beriberi Dr. Rochard stands almost alone. Even Fonssagrives et Le Roy de Méricourt, who according to Rochard were the first to dissipate the confusion that had previously enveloped the disease, admitted paralysis as one of its symptoms.\*

The symptoms of beriberi as described by English observers are succinctly stated by Aitken as follows:—"Universal debility; extreme prostration; anxiety, dyspnoea, numbness, oedema, and paralysis." Aitken, like Rochard, Fonssagrives, and Le Roy de Méricourt is a systematic writer, and like them he has probably never seen a case of the disease; but we quote him not as an original authority but as a witness to the views of the leading English writers upon the point, and also because there is a general impression that Aitken admits a dropsical form of beriberi not attended with paralysis. This is an error, for he distinctly mentions paralysis as a symptom common to the three forms he describes.

Mr. Malcomson who had abundant opportunities of studying the disease states that in sixty five cases:—

"Sixty had more or less paralysis, and in the other five it had been prevented by the early use of remedies; in one, almost the whole body was affected; and in some only a finger or two; 57 had numbness of the feet or hands; in a few, a spot only on different parts of the body was affected, and in others the head and breast were the only parts not benumbed; 48 had pain or soreness; 40 oedema; 33 spasms; 11 had the gait of the sheep; 12 tottering in walking; and 24 had sense of weight in limbs or thorax. There was a sense of coldness in the extremities in five; of biting of ants in three; in ten, sense of tingling; and in four of the feet being covered with clay."†

Mr. Scott, the author of the article "Beriberi" in the *Cyclopædia of Practical Medicine* in criticising the term "Hydrops Asthmaticus" employed by Rogers for this disease says "This term conveys an imperfect notion of the pathology of the disease, a paralytic affection being perhaps a more constant symptom of beriberi than dyspnoea and dropsical effusion." He adds "the *paralytic symptoms*, together with the dyspnoea and dropsical effusion distinguish it (beriberi) from every other disease." We think it unnecessary to quote further, but we may simply say that Ridley, Hamilton, Christie, Dick, Hunter, Patterson, Colquhoun, Morehead & Oudenhoven‡ all of whom had studied in the East give dropsy, paralysis and dyspnoea as the leading symptoms of beriberi.

If we accept these as the symptoms of beriberi it will be at once admitted that the epidemic dropsy which prevailed in this Colony last year is an entirely different disease. Dropsy and anæmia are common to both, and in both the anæmia is acute; but here the resemblance ceases. Paralysis was never seen in acute anæmic dropsy. Even granting that cases of

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\* Fonssagrives et Le Roy de Méricourt; *Béri-béri*.

Archiv. General, XVIII.

Sept. 1861.

† A Practical Essay on Beriberi. By Assistant Surgeon John Grant Malcomson. Madras 1835.

‡ Schmidt's Jahrb., Vol. 150, p. 308.

beriberi occur in which this symptom is absent (and this is a point on which authorities are not agreed) it is difficult to admit that a symptom so distinctive of the disease should never have been once observed among so many thousands of patients, if the dropsy had been really only another form of beriberi.

The *béri-béri* of Rochard is characterised by anæmia and dropsy suddenly developed, and in these respects it resembles not only the epidemic under consideration, but also the beriberi of English Authors. Rochard's *béri-béri* is described as epidemic, but less importance as to be attached to this, inasmuch as a disease may affect simultaneously large numbers of men all living on board ship, under precisely the same conditions, that would not have spread as an epidemic on shore.

In every other particular the *béribéri* of Rochard differs from acute anæmic dropsy. Rochard's disease was a fatal one, (35 to 50 per cent of those attacked dying); it was neither accompanied by fever nor presented a skin eruption, but was attended with obstinate constipation and distressing dyspnœa.

Acute anæmic dropsy as observed in Mauritius was comparatively free from danger, and in this respect differed widely from beriberi in all its forms. The circumstances under which the disease described by Rochard occurred doubtless increased its fatality, although to what extent it is, of course, impossible to say. We can hardly be wrong, however, in regarding it as an essentially fatal disease apart all aggravating conditions. It ran a rapid course and often proved fatal within a few days or even hours. We know that the mortality of the true beriberi varies also from 14 to 36 per cent of those attacked. This difference indicates the influence of hygienic conditions upon the mortality of the disease; and it may be permissible to infer that the mortality in Rochard's *béri-béri* would vary in somewhat similar proportions according to the circumstances in which it appears; but it is hard to believe that the difference between the 2 *per cent* mortality of acute anæmic dropsy, and the 50 per cent of *béri-béri* indicates the difference between the sanitary condition of an Indian camp in Mauritius and that of a French Coolie Ship. The difference in the fatality of the two affections is in fact, so great, that this alone would justify the conclusion that they are essentially distinct.

A no less important distinction is founded upon the fact that the one is a pyretic disease and the other not. It may be also observed that the extension of the dropsy to the serous membranes was accompanied with a marked increase of fever in the case of our epidemic, a circumstance not recorded in connection with beriberi. It might indeed be urged that the febrile character was impressed upon acute anæmic dropsy by endemic influences, but, the fact that a certain rise in temperature attended the disease when it appeared in subjects who had never suffered from malarial fever is opposed to this view.

The way in which a disease commences is often very distinctive. The catarrhal symptoms which precede the out-break of measles; the lumbar pains and vomiting which announce the advent of small-pox; the intense headache and circum-orbital pain premonitory of the appearance of yellow fever are almost as characteristic as the symptoms of these diseases when fully developed. In this way, we are inclined to attach considerable diagnostic significance to the prodromic vomiting and diarrhœa so constant in anæmic dropsy, but which are never seen in beriberi.

Whether the skin eruption is to be regarded as a true exanthem may perhaps be open to doubt. It certainly presented many of the characters of a specific rash. We only express a doubt because we are aware that anomalous erythematous eruptions, as well as bullæ and petechiæ, have been noticed in various diseases such as camp diarrhoea (diarrhoea bellica of Frank)\*. The rash of acute dropsy was, however, so constant and so definite that we incline to regard it as an essential symptom of the malady. Be that as it may, it is a symptom that has never been described as occurring in beriberi, and forms an important distinction between that disease and the one we are now considering.

We have only to add that a careful consideration of the whole subject has led us to the conclusion that acute anæmic dropsy is a disease *sui generis*; not due to malaria; and not identical with beriberi; and that it was first observed and described by those gentlemen whose monographs upon the subject form the basis of this report.

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\* "Chez plusieurs les pieds enflaient, la face dorsale se couvrait de phlyctènes qui se remplissaient de sérosité jaunâtre ou roussâtre. .... Chez d'autres se manifestaient des érysipèles ou des phlegmons à la face et aux bras—un certain nombre offrait des pétéchiés sur le corps. .... Quelquefois, la diarrhée cessant survenait une hydropisie ou une anasarque."

Frank, vol. vi, p. 240.

Mauritius

Apr. 26<sup>th</sup> 1880

Andrew Davidson